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Title: Characteristics of Child Maltreatment and Their Relation to Dissociation, Posttraumatic Stress Symptoms and Depression in Adult Psychiatric Patients

Running Head: Child Maltreatment and Psychopathology

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Abstract:

Little is known about the influence of particular characteristics of childhood maltreatment, such as developmental stage, relationship to the perpetrator and nature of the trauma, on adult psychopathology. The effects of childhood maltreatment were assessed in adult psychiatric patients (N=287) using self-rating scales and diagnostic checklists. Maltreatment was strongly associated with dissociation. This relationship was observed for all childhood developmental stages and was strongest when the perpetrator was outside the family. Dissociation was more strongly correlated with childhood emotional abuse and sexual harassment, than with sexual or physical abuse. Childhood sexual abuse was found to be associated with symptoms of posttraumatic stress. Findings suggest that dissociation is a relatively specific consequence of childhood maltreatment that is largely independent of the familial relationship to the perpetrator or the child's developmental stage.

Keywords: Dissociation, Child Abuse, Posttraumatic Stress Disorder

The World Health Organization defines child maltreatment as “all forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child’s health, survival, development or dignity in the context of a relationship of responsibility, trust or power” (World Health Organization, 1999). Dissociation, mood disorders, anxiety and posttraumatic stress symptoms are believed to constitute potential sequelae of childhood trauma (Fairbank et al, 2007; Heim et al, 2001; Spertus et al, 2003; Van der Hart et al, 2006). However, it is not clear what aspects of childhood maltreatment influence the development and nature of trauma-related symptoms.

Dissociation related to trauma may involve disruptions or breakdowns of memory, awareness, identity and/or perception ("psychoform dissociation") as well as losses or distortion of sensory, perceptual, affective or motor functions ("somatoform dissociation") (Van der Hart et al, 2004). Current theories about the development of severe dissociation emphasize the role of early onset chronic abuse and neglect from primary caregivers in childhood (Liotti, 2006; Van der Hart et al, 2006). There is ample evidence supporting the strong association between childhood maltreatment and dissociative psychopathology (Chu et al, 1999; Draijer et al, 1999; Nijenhuis et al, 1998; Ogawa et al, 1997; Van der Kolk et al, 2005). Not all traumatized children develop dissociative symptoms and other factors, such as severity of abuse, numbers of perpetrators, the victim’s coping style and affect modulation capacities, may moderate its relationship with maltreatment (Briere, 2006; Lange et al, 1999). This also holds true for the relationship between posttraumatic stress symptoms, depression and childhood maltreatment; victims of child abuse are at increased risk for developing posttraumatic stress disorder and depressive disorder, but childhood victimization alone is not sufficient to cause these disorders (Chapman et al, 2004; Widom, 1999).

The present study investigated the relationship between particular characteristics of childhood maltreatment and trauma-related symptoms, i.e. dissociation, posttraumatic stress symptoms and depression. We sought to answer three questions: first, what is the association between childhood developmental stage when the maltreatment occurred and amounts of dissociation, posttraumatic stress symptoms and depression in adulthood? Second, how is the familial relationship with the perpetrator related to the manifestation of posttraumatic stress symptoms in adulthood? Third, are there specific associations between the type of childhood maltreatment, adulthood trauma and particular trauma-related symptoms in adulthood?

METHODS

Procedure

Data were obtained as part of the validation procedure of the German adaptation of the Somatoform Dissociation Questionnaire (SDQ-20) (Mueller-Pfeiffer et al, 2010). Outpatient and inpatients units of 7 psychiatric services in the German part of Switzerland and the federal state of Baden-Wurttemberg in Germany, as well as several private psychiatry and psychotherapy practitioners asked their clients to participate in the study. A nonprobability sampling technique was employed; 91 patients were enrolled consecutively while an additional 196 patients were non-consecutively enrolled. These two patient samples did not differ in terms of gender ($\chi^2 = 1.06$, df = 1, p = .36) or age (t = .17, df = 285, p = .87) and were combined for subsequent analyses. Patients were excluded if they had: serious cognitive impairment or mental retardation, acute psychosis, severe substance abuse, affective disorder with psychotic symptoms, acute suicidal ideation, and lack of German language ability. The study protocol was approved by local institutional review boards. All subjects provided written informed consent and were offered written feedback of test scores to their respective therapists.

Subjects

Two-hundred-eighty-seven subjects (77.4% women) with ages between 17 and 73 years (M = 37.4, SD = 13.5) were enrolled in the study. Diagnoses according to ICD-10 (World Health Organization, 2010) were assessed by the individual therapists using the ICD-10 Symptom Checklists for Mental Disorders (Bronisch et al, 1995; Hiller et al, 1995). Table 1 summarizes the subjects' characteristics. Diagnoses were not equally distributed across gender (Fisher's exact test, $p < .05$); only women had ICD-10 F5 behavioural syndromes associated with physiological disturbances and physical factors.

Measures

Early life stress (ELS) and adult life stress (ALS) were measured using the Traumatic Experiences Checklist (TEC) (Nijenhuis et al, 2002), a 29-item retrospective self-report questionnaire. Fifteen items cover ELS childhood maltreatment related to emotional abuse, emotional neglect, physical abuse, sexual harassment (acts of a sexual nature that do not involve physical contact), and sexual abuse (unwanted sexual acts involving physical contact). There are three yes/no items for each of these five areas that rate whether the offender belonged to one-of-three familial relationships (intra-familial [e.g.,

father], peri-familial [e.g., uncle], or extra-familial [e.g., teacher]). In addition, the TEC asks about 14 potentially traumatic experiences that are unrelated to instances of childhood maltreatment, including: war experiences, witnessing trauma to other people and life stresses such as poverty, serious illness, physical injury, threat to life, alcohol or drug abuse by family members, psychiatric illnesses of family members, death of a family member and divorce. The TEC questionnaire assesses the age(s) at which an event occurred (0 to 6 years, 7 to 12 years, 13 to 18 years, above 18 years of age) with multiple responses allowed. Because we were interested in studying the influence of familial relationship of the perpetrator of the childhood maltreatment and the child's developmental stage at the time of maltreatment, we revised and simplified the complex original scoring of the TEC. A *child maltreatment total score* was created by adding together all events that occurred within the first three developmental stages (ages 0 - 18) across the three possible familial relationships and across the possible forms of maltreatment, resulting in a score that could range from 0 to 45 (with 45 = 3 x 3 x 5), with higher scores representing more severe childhood maltreatment. This childhood maltreatment total score can be broken down in ways that reflect three different points of view for subsequent analyses. It can be calculated as a sum of *three subscores for the developmental stage* (maximum range 0 to 15 each), a sum of *three subscores for the familial relationship* (maximum range 0 to 15 each), or a sum of *five subscores for the different forms of maltreatment* (maximum range 0 to 9 each). Additionally, a *score for other stressors* that included the 14 events not specific to childhood maltreatment was constructed from the ELS. This score added up the number of events that occurred over the first three developmental stages and ranged from 0 to 42 (with 42 = 14 x 3). A *score for the ALS* was created by adding the number events that occurred after 18 years of age across all 29 items of the questionnaire; this score ranged from 0 to 29. The internal consistency for the total score of childhood maltreatment was excellent (Cronbach's alpha = .92). For the subscales evaluating developmental stages, familial relationships, and forms of maltreatment, Cronbach's alpha ranged from .73 to .89 and was .84 and .81 for the ELS scores for other stressors and ALS scores, respectively. These internal consistencies are somewhat higher than those for the original scoring of the TEC (Nijenhuis et al, 2002). Additional information regarding the reliability and validity of the German adaptation of the TEC can be found in another paper (Schumacher et al, 2011).

The Dissociative Experience Scale (DES) is a self-rating instrument used worldwide for the assessment of dissociation (Bernstein et al, 1986; Carlson et al, 1993). The development of the scale is based on a conceptualization of a dissociative continuum. According to this view, dissociation can

occur in healthy as well as in psychiatric subjects and differs only in the degree of its manifestation (Brown, 2006). The 28 items of the DES are rated on an 11-point Likert scale that ranges from 0 (“never”) to 100 (“always”) and correspond to the subscales of absorption, depersonalization, derealization and amnesia. The psychometric properties of the German adaptation of the scale (Cronbach’s alpha = .91; test–retest reliability Pearson r = .86; good differentiation between healthy control subjects, students, unselected neurological and psychiatric inpatients, neurological and psychiatric patients with a dissociative disorder and schizophrenics) are comparable to the original version (Freyberger et al, 1998; Spitzer et al, 1998). Van der Hart et al (2004) conceptualized dissociation as a manifestation of a pathological process, rather than as a continuum from normal (e.g., absorption) to pathological dissociation as the DES intended to capture. Consequently, we used the score derived from the 8-item DES-Taxon as an outcome variable that reflected psychoform dissociation (Waller et al, 1996). The DES-Taxon is a brief form of the DES that measures pathological experiences of dissociation.

A German adaptation of the Somatoform Dissociation Questionnaire (SDQ-20) was used to measure somatoform manifestations of dissociation. The psychometric properties and cross-cultural validity of the German adapted instrument are excellent (Cronbach’s alpha = .91; test–retest reliability Pearson r = .89; good differentiation between patients with versus without a dissociative disorder) (Mueller-Pfeiffer et al, 2010). The 20 items of the SDQ-20 are rated on a 5-point Likert scale (1 = “this does not apply to me at all" to 5 = "this applies to me strongly") such that the lowest obtainable score is 20 points.

Posttraumatic stress symptoms were measured using the German Adaptation (Ehlers et al, 1996) of the Posttraumatic Stress Diagnostic Scale (PDS) (Foa et al, 1997). The PDS is a 49-item questionnaire that assesses symptoms consistent with the DSM-IV diagnostic criteria for posttraumatic stress disorder (American Psychiatric Association, 1994). Re-experiencing, avoidance, and arousal symptoms were rated on a 4-point Likert scale from 0 (not at all or only 1 time) to 3 (5 or more times per week/almost always). The PDS has demonstrated good internal consistency (Cronbach’s alpha = .92 for the total severity score, .78 for re-experiencing, .84 for avoidance, and .84 for arousal), test-retest reliability (Pearson r = .83 for total severity, .77 for re-experiencing, .81 for avoidance, and .85 for arousal) and validity (strong relationship with other measures of trauma-related psychopathology) (Foa et al, 1997).

Depression was measured using the depression subscale of the Hospital Anxiety and Depression Scale. The original version (Zigmond et al, 1983), as well as the German adaptation (Herrmann et al, 1995) have comparably good psychometric properties (Cronbach's alpha = .80 to .93 for the anxiety scale, .81 to .90 for the depression scale, retest-reliability r > .80; substantial correlations with external criteria). The ICD-10 Symptom Checklists for Mental Disorders (Bronisch et al, 1995; Hiller et al, 1995) has demonstrated good interrater reliability (overall kappa = 0.72) (Janca et al, 1993). Table 2 summarizes the assessments by the self-rating scales separated by gender.

Data Analyses

Statistical analyses were performed using SPSS 18 (SPSS Inc., Chicago, Il, USA). A multivariate statistical approach was used because of the intercorrelations amongst the different forms of childhood maltreatment, adult trauma and other stressful life experiences (Green et al, 2010). In order to assess the influence of childhood maltreatment in general, as well as the influence of the familial relationship, developmental stage and type of childhood maltreatment, on dissociation and posttraumatic stress symptoms, linear multiple regression analysis was used. Gender, age, ALS score, and ELS score for other stressors were also included in the regression analyses. The potential influences of familial relationships and developmental stage on the five forms of childhood maltreatment were examined using hierarchical multiple regression analyses. After adjusting for gender, age, ALS score, ELS score for other stressors, and separately for each ELS score associated with a given form of childhood maltreatment, the incremental contribution (R^2 change) of familial relationship and developmental stage was examined. The potential interaction effects between gender and childhood maltreatment were tested in the multiple regression analyses. Interaction effects were tested for all childhood maltreatment scores (total score and eleven subscores). Potential problems associated with multicollinearity were avoided by entering each interaction predictor with the corresponding main effect (e.g., interaction between gender and intra-familial child maltreatment together with intra-familial child maltreatment) as well as all of the control variables. This procedure allowed to evaluate the interaction effect as either nonexistent (non-significant), compensatory (significant interaction with no significant main effect) or additive (significant interaction and significant main effect) compared to the main effect.

Nearly all distributions of variables used in the multiple regression analyses were positively skewed; consequently, a square root transformation was applied. The distribution of PDS total scores was

normal, so these data were not transformed. The predictor variables were highly intercorrelated; for example, scores for the five forms of childhood maltreatment showed intercorrelations (Pearson r) ranging from .37 to .70. However, none of the regression analyses tolerance values was lower than .25, indicating that the predictors were moderately multicollinear. The level of significance was set at $p \leq 0.05$. For an expected R^2 of 35%, a sample size of approximately 300 subjects would be needed to detect an incremental increase of $R^2 = 2\%$, with power = 80%. Thus, the study was adequately powered to detect relatively small effect sizes (Cohen et al, 2003).

RESULTS

As shown in Table 3 (Model I), childhood maltreatment was by far the most important predictor of psychoform dissociation (measured by the DES-Taxon) and somatoform dissociation (measured by the SDQ-20). In the multiple regression analyses, neither ALS score nor ELS score for other stressors were significant predictors for dissociation. Regarding PTSD and depression, both childhood maltreatment and stressors experienced during adulthood contributed significantly to a higher symptom load. However, the adjusted multiple R^2 was much smaller for depression (9.6%) compared to PTSD (24.3%), somatoform dissociation (29.6%), and psychoform dissociation (35.7%).

When the three developmental stages were examined separately (Table 3, Model II), childhood maltreatment between 0 and 12 years of age significantly predicted psychoform dissociation (DES-Taxon), whereas childhood maltreatment between 13 and 18 years of age was a significant predictor for somatoform dissociation (SDQ-20). Posttraumatic stress symptom (PDS) and depression (HADS) scores were not more strongly related to child maltreatment during one developmental stage or another.

When examined separately for the three possible familial relationships of the perpetrator (Table 3, Model III), peri- and extra-familial childhood maltreatment predicted both forms of dissociation. Posttraumatic stress symptom and depression scores were predicted by extra-familial childhood maltreatment.

Among the five forms of childhood maltreatment (Table 3, Model IV), emotional abuse and sexual harassment significantly predicted both psychoform and somatoform dissociation, whereas sexual abuse was a significant predictor of psychoform dissociation as well as PTSD symptom severity. Emotional neglect was a significant predictor of depression scores.

Emotional abuse between 7 and 12 years of age (beta = .19 and beta = .18, respectively, both $p < .05$) and in peri- (beta = .13, $p < .05$ and beta = .22, $p < .001$, respectively) and extra-familial settings (both beta = .13, $p < .05$) predicted psychoform and somatoform dissociation. Sexual harassment between 7 and 12 years of age predicted psychoform dissociation (beta = .16, $p < .05$), and between 13 and 18 years predicted somatoform dissociation (beta = .20, $p < .01$). Sexual harassment occurring within intra- (beta = .17, $p < .01$) and peri-familial relationships (beta = .13, $p < .05$) predicted psychoform dissociation, whereas somatoform dissociation was predicted by all familial relationships (intrafamilial: beta = .12, $p < .05$, peri-familial: beta = .15, $p < .01$, extra-fammilial: beta = .16, $p < .01$). Sexual abuse between 13 and 18 years predicted PTSD symptom severity (beta = .17, $p < .05$). Sexual abuse in peri- (beta = .16, $p < .01$ and beta = .13, $p < .05$, respectively) and extra-familial relationships (beta = .11, $p < .05$ and beta = .16, $p < .05$, respectively) predicted psychoform dissociation as well as posttraumatic stress symptoms. Finally, emotional neglect in extra-familial relationships predicted depression scores (beta = .17, $p < .05$).

Examination of the interaction effect between gender and childhood maltreatment revealed mostly additive effects for psychoform dissociation, i.e., childhood maltreatment affected women more strongly than men. This relationship was evident for childhood maltreatment in general, childhood maltreatment across developmental stages, within intra-familial and extra-familial relationships to the perpetrator and for emotional neglect, emotional abuse and sexual harassment (beta's $\geq .16$, p's $< .05$). The interaction of gender with childhood maltreatment within peri-familial relationships to the perpetrator, and with physical and sexual abuse, was non-significant (p's $\geq .06$). Regarding somatoform dissociation, there were additive interactions between gender and childhood maltreatment in general and within extra-familial relationships to the perpetrator (beta's = .12, p's = .05). The interaction of gender with childhood maltreatment between 0 and 6 years had a compensatory effect: the main effect of childhood maltreatment between 0 and 6 years on somatoform dissociation was non-significant (beta = .11, $p = .17$). Regarding posttraumatic stress symptoms, the interaction of gender with childhood maltreatment between 13 and 18 years, as well as within extra-familial relationships to the perpetrator, had a compensatory effect; childhood maltreatment during this developmental stage and this familial relationship to the perpetrator had a higher impact on women than men (main effects: p's ≥ 0.07, interaction effects: p's $\leq .05$). No significant interactions between gender and childhood maltreatment were found for depression scores.

DISCUSSION

The aim of our study was to explore how childhood maltreatment (physical, sexual and emotional abuse and neglect), age of occurrence of the maltreatment and familial closeness of the perpetrator, contribute to dissociation, posttraumatic stress and depressive symptoms in adulthood. Generally, childhood maltreatment was a stronger predictor of both psychoform and somatoform dissociation than of posttraumatic stress symptoms. Moreover, dissociation was more strongly predicted by childhood maltreatment than by other early life stress (such as family problems, loss of a family member, or serious bodily injury) or adult life stress. Levels of dissociation were positively associated with the severity of emotional and sexual maltreatment throughout all developmental stages, regardless of whether maltreatment occurred at the hands of people inside or outside the core family. In contrast, posttraumatic stress symptoms were significantly associated with adult life stress and sexual abuse, but not emotional maltreatment, during the teenage, but not preteen, years.

The first aim of our study was to explore the impact of the developmental stage during which maltreatment occurs on the development of psychoform and somatoform dissociation, posttraumatic stress symptoms and depression. We observed a significant relationship between psychoform dissociation in adulthood and maltreatment in childhood. This observation agrees with findings from most epidemiological studies of non-clinical samples (Ogawa et al, 1997; Van der Kolk et al, 2005) and psychiatric populations (Chu et al, 1999; Draijer et al, 1999; Nijenhuis et al, 1998). However, some studies have not observed this relationship; perhaps because of a selective focus on sexual violence (Briere et al, 1988b; Lange et al, 1999) or sexual and physical violence (Lipschitz et al, 1996), which did not consider other types of maltreatment. In the present study, psychoform dissociation was significantly related to childhood maltreatment before the age of 13. Somatoform, similar to psychoform, dissociation was strongly related to childhood maltreatment and not to other life stress in childhood or adulthood, but only when maltreatment occurred after the age of 12. This contrasts with the findings of Nijenhuis et al (1998), who observed a significant relationship between somatoform dissociation and the onset of childhood maltreatment in the first 6 years of life, and Briere et al (1988b), who did not observe a relationship between the age of childhood sexual victimization and chronic somatization in a nonclinical adult sample.

Our data support theoretical claims that severe dissociation originates in the context of adverse events in the child's development, as conceptualized by Van der Hart et al.'s theory of structural dissociation of the personality (Van der Hart et al, 2006) and the newly proposed (for DSM-V)

Developmental Trauma Disorder, a diagnosis for children with complex trauma histories (Van der Kolk, 2005). Our finding of a significant relationship between dissociation and trauma across all child developmental stages suggests that a consideration of factors other than the early onset of maltreatment is important to our understanding dissociative pathology's developmental pathway. Our predictive models, which included childhood and adulthood life stressors in addition to childhood maltreatment, only explained 39 and 34 percent of the variance for psychoform and somatoform dissociation, respectively. This suggests that other, yet-to-be unidentified, factors contribute to the manifestation of dissociative pathology in adulthood, which might include genetic predisposition (Becker-Blease et al, 2004) and individual risk or protective factors (Masten et al, 1990).

In contrast to dissociation, posttraumatic stress symptoms were significantly related to adult life stress and sexual abuse in adolescence (older than 12 years) but not to other types of childhood maltreatment. This is inconsistent with previous findings demonstrating an association between posttraumatic stress symptoms and emotional abuse in teenage (Wekerle et al, 2009) and adult (Spertus et al, 2003) women. Our findings suggest that a more mature brain structure may be a prerequisite for the development of PTSD (Graf et al, 2008). The selective association of PTSD symptoms with childhood sexual abuse further corresponds to previous studies showing the highest rates of PTSD among victims of sexual violence (Kessler et al, 1995). Our observation of a significant association between adult depression and emotional neglect in childhood and adult life stress is in agreement with previous findings (Briere et al, 1988a; Spertus et al, 2003; Wright et al, 2009).

The second aim of our study was to investigate whether the perpetrator's relationship to the person he/she is maltreating influenced the development of adult psychopathology. Sexual abuse predicted levels of psychoform dissociation more strongly when the abuse was committed by someone outside, as compared to inside, the core family, after adjusting for other life stress in childhood or adulthood. An opposite pattern was observed for sexual harassment. These results contrast with some previous findings indicating that incest had a greater impact on the development of adult psychoform dissociation (Lipschitz et al, 1996; Teicher et al, 2006). There are several possible explanations for this discrepancy: First, a closer relationship with the perpetrator(s) might lead to a reluctance to report, and/or a decreased memory for, the sexual abuse (Schultz et al, 2003) compared to sexual harassment without physical contact. Second, intra-familial sexual abuse may be associated with specific types of dissociation, such as dissociative identity disturbances, which are not selectively captured by the DES-Taxon. Dissociative identity disturbances are thought to emerge in children who

are faced with unresolvable dilemmas when they desire love and nurturing from frightening and neglecting attachment figures (Spiegel, 1986; Van der Hart et al, 2006).

Our third aim was to determine whether there are specific relationships between particular forms of maltreatment and mental symptoms. The finding that both psychoform and somatoform dissociation, but not posttraumatic stress symptoms, were more strongly related to emotional abuse and sexual harassment than to physical or sexual abuse suggests that different developmental pathways may mediate dissociation and posttraumatic stress symptoms in response to childhood trauma. In the context of childhood adversities, sexual abuse involving physical contact seems to be a necessary condition for the development of posttraumatic stress symptoms. It also appears that somatoform dissociation can emerge when children are the targets of emotional abuse, even though it does not involve threat of bodily harm (Nijenhuis, 2009; Nijenhuis et al, 1998; Nijenhuis et al, 2004; Waller et al, 2000).

Some gender differences were observed in the present study. Experience of more severe childhood maltreatment in all forms (except physical abuse) and across different familial relationships to the perpetrator was reported by women. Moreover, the association between psychoform dissociation and emotional abuse, emotional neglect and sexual harassment was stronger in women than in men. However, no effect of gender on the association between psychoform dissociation and physical and sexual abuse was found. This suggests that women tend to develop stronger psychoform dissociation in response to emotional types of childhood maltreatment than do men. This is in contrast to Nijenhuis et al. (1998) who reported similar associations between psychoform dissociation and various childhood trauma factors for women and men with a dissociative disorder. The influence of gender on other outcome measures was less pronounced for somatoform dissociation and posttraumatic stress symptoms and absent for depression.

We acknowledge a number of limitations in our study. Retrospective evaluations of adverse experiences in childhood could be influenced by current, adulthood psychopathology, such as depression, which might promote overreporting of nature and severity of past stressful experiences. In contrast, recollections of past stressful experiences could be influenced by memory distortions such as dissociative amnesia or denial, which could result in underreporting. Memory in the first 6 years of life is especially susceptible to distortion, which raises concern regarding the accuracy of trauma reports from this development stage. Furthermore, the trauma reports obtained for the present study were not externally corroborated. The use of a nonprobability sampling technique precludes generalization of

results to the population of psychiatric patients. However, because the consecutively sampled subjects did not significantly differ from the convenience sample with regard to sociodemographic characteristics, some degree of generalization of findings to psychiatric populations can be expected. However, findings from the present work may not extend to traumatized individuals, in general. The present work only included trauma-exposed individuals receiving psychiatric treatment. It is possible that individuals receiving treatment could have been exposed to more severe trauma and/or might show more psychopathology than individuals who do not seek treatment. The majority of our subjects were females; it is unclear whether the findings would extend to a predominantly male sample. We cannot rule out type II errors due to limited statistical power in respect to the non-significant associations we found between trauma variables and outcome variables. Finally, the correlational nature of our data does not allow for conclusions regarding the causal relationships between trauma factors and psychopathology.

An important strength of the present study is its assessment of a broad spectrum of adverse events that can occur during childhood and adulthood. This is particularly relevant because childhood adversities are often highly clustered such that different types of childhood maltreatment often occur together (Green et al, 2010). This sort of clustering is evident in the high degree of intercorrelation we observed amongst scores for the five different forms of childhood maltreatment. Research that considers a particular type of childhood maltreatment may overestimate overall associations with outcome measures. The measurement of dissociative subtypes, i.e., psychoform and somatoform, as opposed to using a broader measure of dissociation, is an additional strength of the reported study as these unique constructs appear to have distinct impacts on daily life functions (Nijenhuis, 2000).

CONCLUSION

Findings from the present study support the conclusion that dissociative symptoms are a relatively specific outcome of childhood maltreatment that do not depend on the developmental stage within which it occurs or whether it is experienced within the family context. Emotional maltreatment, apart from physical or sexual abuse, also contributes to dissociative pathology in adulthood. Consequently, consideration should be given to the occurrence of emotional maltreatment, in addition to physical and sexual abuse, regardless of whether it occurs inside or outside the family.

CONFLICT OF INTEREST

The authors have no financial conflict of interest.

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TABLE 1. Characteristics of 287 psychiatric in- and outpatients separated by gender

	Women (n = 222)		Men (n = 65)		Analysis		
Variable	**n**	**(%[a])**	**n**	**(%[a])**	**Test**	**df**	**p[b]**
Achieved level of education					Chi^2 = .86	2	.65
Obligatory school (9 years)	47	(22.4)	11	(17.5)			
Apprenticeship, College	108	(51.4)	36	(57.1)			
Technical or commercial college/university	55	(26.2)	16	(25.4)			
Main-Diagnoses (ICD-10)					Fisher's exact		<.05[c]
F1: Mental and behavioural disorders due to psychoactive substance use	6	(2.7)	2	(3.2)			
F2: Schizophrenia, schizotypal and delusional disorders	5	(2.3)	1	(1.6)			
F3: Mood (affective) disorders	67	(30.5)	23	(36.5)			
F4: Neurotic, stress-related and somatoform disorders	112	(50.9)	32	(50.8)			
F5: Behavioural syndromes associated with physiological disturbances and physical factors	19	(8.6)	0	(0.0)			
F6: Disorders of adult personality and behaviour	9	(4.1)	1	(1.6)			
F9: Behavioural and emotional disorders with onset usually occurring in childhood and adolescence	2	(0.9)	4	(6.3)			
Comorbid F6-Diagnosis	58	(26.4)	15	(23.8)	Chi^2 = .17	1	.68

[a] Valid percent; [b]2-sided; [c]p = .22 when F5-Diagnosis is omitted.

TABLE 2. Assessments including adult life stress, early life stress and outcome measures of 287 psychiatric in- and outpatients separated by gender

	Women (n = 222)			Men (n = 65)			t-Test		
Variable	**M**	**(SD)**	**%[a]**	**M**	**(SD)**	**%[a]**	**t**	**df**	**p**
Age (years)	37.1	(13.4)	-	38.1	(14.0)	-	0.46	285	.64
Adult life stress (ALS)	4.1	(4.0)	86.5	2.5	(2.6)	73.8	4.00	159[b]	<.001
Early life stress (ELS)									
Child maltreatment									
Total score	8.4	(7.7)	86.0	4.3	(5.8)	61.5	4.6	138[b]	<.001
0 - 6 years	1.8	(2.3)	57.2	0.6	(1.3)	33.1	5.0	184[b]	<.001
7 - 12 years	3.3	(3.2)	78.4	1.7	(2.4)	44.6	4.5	135[b]	<.001
13 - 18 years	3.3	(3.0)	78.8	2.0	(2.7)	50.8	3.2	285	<.01
Intra-familial	4.4	(3.9)	77.5	2.0	(2.9)	46.2	5.4	140[b]	<.001
Peri-familial	1.5	(2.2)	43.2	0.8	(1.7)	29.2	2.7	131[b]	<.01
Extra-familial	2.5	(3.2)	64.9	1.5	(2.3)	44.6	2.8	144[b]	<.01
Emotional neglect	3.0	(2.7)	73.9	1.5	(2.2)	46.2	4.1	285	<.001
Emotional abuse	2.0	(2.1)	62.6	1.4	(2.0)	46.2	2.2	285	<.05
Physical abuse	1.2	(1.7)	45.9	1.0	(1.5)	38.5	1.1	285	.27
Sexual harassment	1.2	(1.6)	50.9	0.3	(0.7)	20.0	5.8	241[b]	<.001
Sexual abuse	1.0	(1.7)	40.5	0.1	(0.5)	7.7	6.8	283[b]	<.001
Other stressors	4.3	(4.4)	83.3	2.4	(2.7)	67.7	4.4	172[b]	<.001
DES Taxon	15.4	(16.3)	-	8.2	(9.5)	-	4.4	176[b]	<.001
SDQ-20	34.2	(14.1)	-	27.0	(8.0)	-	5.2	190[b]	<.001
PDS	24.2	(12.8)	-	21.9	(12.9)	-	1.3	280	.21

[a] Percentage of patients with at least one event

[b] Equal variances not assumed

DES Taxon: Taxon of the Dissociative Experience Scale; SDQ-20: Somatoform Dissociation Questionnaire; HADS: Hospital Anxiety and Depression Scale; PDS: Posttraumatic Stress Diagnostic Scale

TABLE 3. Linear Multiple Regression Models on Predictors for Psychoform Dissociation, Somatoform Dissociation, Depression, and Posttraumatic Stress Symptoms among 287 Psychiatric Outpatients

Model I	**DES Taxon**	**SDQ-20 Total**	**PDS Total**	**HADS Depression**
Predictor	**Beta**	**Beta**	**Beta**	**Beta**
Gender	0.02	0.08	-0.06	-0.09
Age	-0.10 *	0.02	0.01	0.03
Adult life stress (ALS)	0.03	0.09	0.33 ***	0.21 **
ELS (other stressors)	0.14	0.04	-0.02	-0.04
ELS (child maltreatment)	0.47 ***	0.44 ***	0.28 ***	0.21 *
Model: Adjusted R^2 [%]	35.7 ***	29.6 ***	24.3 ***	9.6 ***

*p ≤ .05, **p ≤ .01, ***p ≤ .001

ELS: Early life stress; DES: Dissociative Experience Scale; SDQ-20: Somatoform Dissociation Questionnaire; HADS: Hospital Anxiety and Depression Scale; PDS: Posttraumatic Stress Diagnostic Scale. To better meet the assumption of normality, all dimensional variables (dependent as well as independent variables) were square root transformed with exception of PDS Total.

Model II	**DES Taxon**	**SDQ-20 Total**	**PDS Total**	**HADS Depression**
Predictor	**Beta**	**Beta**	**Beta**	**Beta**
Gender	0.01	0.08	-0.07	-0.09
Age	-0.12 *	0.02	-0.01	0.03
Adult life stress (ALS)	0.03	0.09	0.33 ***	0.21 **
ELS (other stressors)	0.15 *	0.07	-0.01	-0.02
ELS (child maltreatment) 0 - 6 years	0.15 *	0.13	0.11	0.03
ELS (child maltreatment) 7 - 12 years	0.24 *	0.09	0.13	0.06
ELS (child maltreatment) 13 - 18 years	0.12	0.22 *	0.05	0.11
Model: Adjusted R^2 [%]	34.6 ***	27.6 ***	23.5 ***	8.5 ***

*p ≤ .05, **p ≤ .01, ***p ≤ .001

ELS: Early life stress; DES: Dissociative Experience Scale; SDQ-20: Somatoform Dissociation Questionnaire; HADS: Hospital Anxiety and Depression Scale; PDS: Posttraumatic Stress Diagnostic Scale. To better meet the assumption of normality, all dimensional variables (dependent as well as independent variables) were square root transformed with exception of PDS Total.

Model III	**DES Taxon**	**SDQ-20 Total**	**PDS Total**	**HADS Depression**
Predictor	**Beta**	**Beta**	**Beta**	**Beta**
Gender	0.05	0.11 *	-0.06	-0.09
Age	-0.09	0.05	0.00	0.03
Adult life stress (ALS)	0.04	0.10	0.33 ***	0.21 **
ELS (other stressors)	0.14 *	0.04	-0.03	-0.04
ELS (child maltreatment) intra-familial	0.12	0.01	0.13	0.11
ELS (child maltreatment) peri-familial	0.15 *	0.18 **	0.02	-0.03
ELS (child maltreatment) extra-familial	0.27 ***	0.36 ***	0.18 *	0.16 *
Model: Adjusted R^2 [%]	35.8 ***	33.9 ***	24.3 ***	9.4 ***

*p ≤ .05, **p ≤ .01, ***p ≤ .001

ELS: Early life stress; DES: Dissociative Experience Scale; SDQ-20: Somatoform Dissociation Questionnaire; HADS: Hospital Anxiety and Depression Scale; PDS: Posttraumatic Stress Diagnostic Scale. To better meet the assumption of normality, all dimensional variables (dependent as well as independent variables) were square root transformed with exception of PDS Total.

Model IV	**DES Taxon**	**SDQ-20 Total**	**PDS Total**	**HADS Depression**
Predictor	**Beta**	**Beta**	**Beta**	**Beta**
Gender	0.02	0.07	-0.09	-0.11
Age	-0.10 *	0.01	0.00	0.02
Adult life stress (ALS)	0.05	0.10	0.33 ***	0.21 **
ELS (other stressors)	0.08	0.01	-0.08	-0.04
ELS (child maltreatment) Emotional neglect	0.02	0.09	0.11	0.19 *
ELS (child maltreatment) Emotional abuse	0.27 ***	0.20 *	0.07	0.05
ELS (child maltreatment) Physical abuse	0.02	-0.01	0.01	-0.05
ELS (child maltreatment) Sexual harassment	0.21 **	0.26 ***	-0.02	-0.03
ELS (child maltreatment) Sexual abuse	0.13 *	0.06	0.29 ***	0.12
Model: Adjusted R^2 [%]	38.6 ***	31.7 ***	28.2 ***	9.9 ***

*p ≤ .05, **p ≤ .01, ***p ≤ .001

ELS: Early life stress; DES: Dissociative Experience Scale; SDQ-20: Somatoform Dissociation Questionnaire; HADS: Hospital Anxiety and Depression Scale; PDS: Posttraumatic Stress Diagnostic Scale. To better meet the assumption of normality, all dimensional variables (dependent as well as independent variables) were square root transformed with exception of PDS Total.